



#WasteExpo

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Factors Determining the Development of Organics Processing Facilities – US vs EU



Organics Infrastructure Development, Investing Strategies, and Case Studies

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Numbers May Be Inappropriate for Future Use

PRESENTED DATA IS <u>NOT RELIABLE</u>
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Europe vs. the U.S.

Why is Europe so far ahead of the U.S.
in the development of AD facilities?

Europe vs. the U.S.

What is different between organics processing in Europe and the U.S.?

Europe vs. the U.S.

Realities and Myths

Europe vs. the U.S.

Reality

European regulations regarding organics diversion have been in place for more than 20 years

Europe vs. the U.S.

European Regulations and Policies

- EU Landfill Directive (Council Directive 1999/31/EC of April 26, **1999**)
 - Established goals for diversion of biodegradable municipal waste from landfills.
 - Included a reduction of landfilling to 35 percent of 1995 levels by 2014.
- German regulations limiting disposal of untreated organics from landfills enacted in **1993** and updated to comply with EU regulations in 2005.
- High levies/taxes have been imposed in the UK and by all EU countries except Germany.
- Financial incentives for renewable energy.

Europe vs. the U.S.

Reality

Landfill tipping fees are typically much higher in Europe than the U.S.

Examples:

- UK \$199 / ton (\$95/ton levy/tax)
- Sweden \$109 / ton (\$55/ton levy/tax)
- Denmark \$106 / ton (\$70/ton levy/tax)

- US \$54 / ton
- California \$58 / ton (most pay less than \$35/ton)

Europe vs. the U.S.

Reality

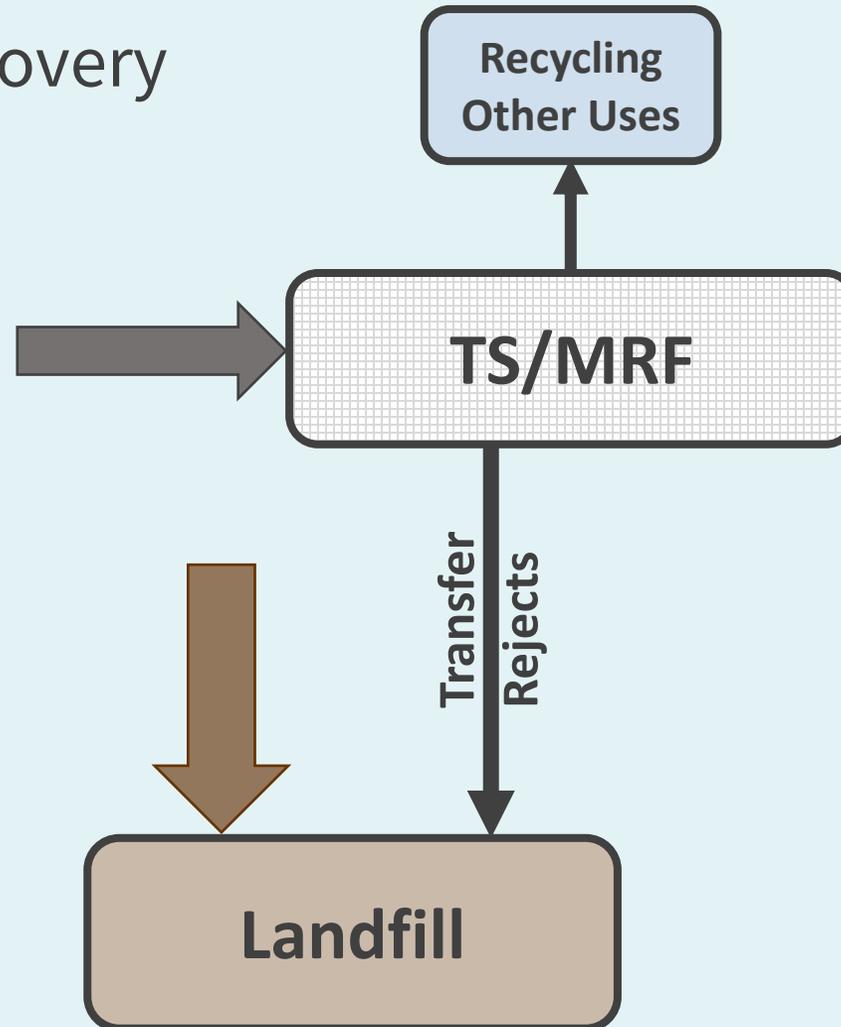
Europe has extensive waste-to-energy and incineration facilities.

So what?

Organics Processing

Solid Waste System

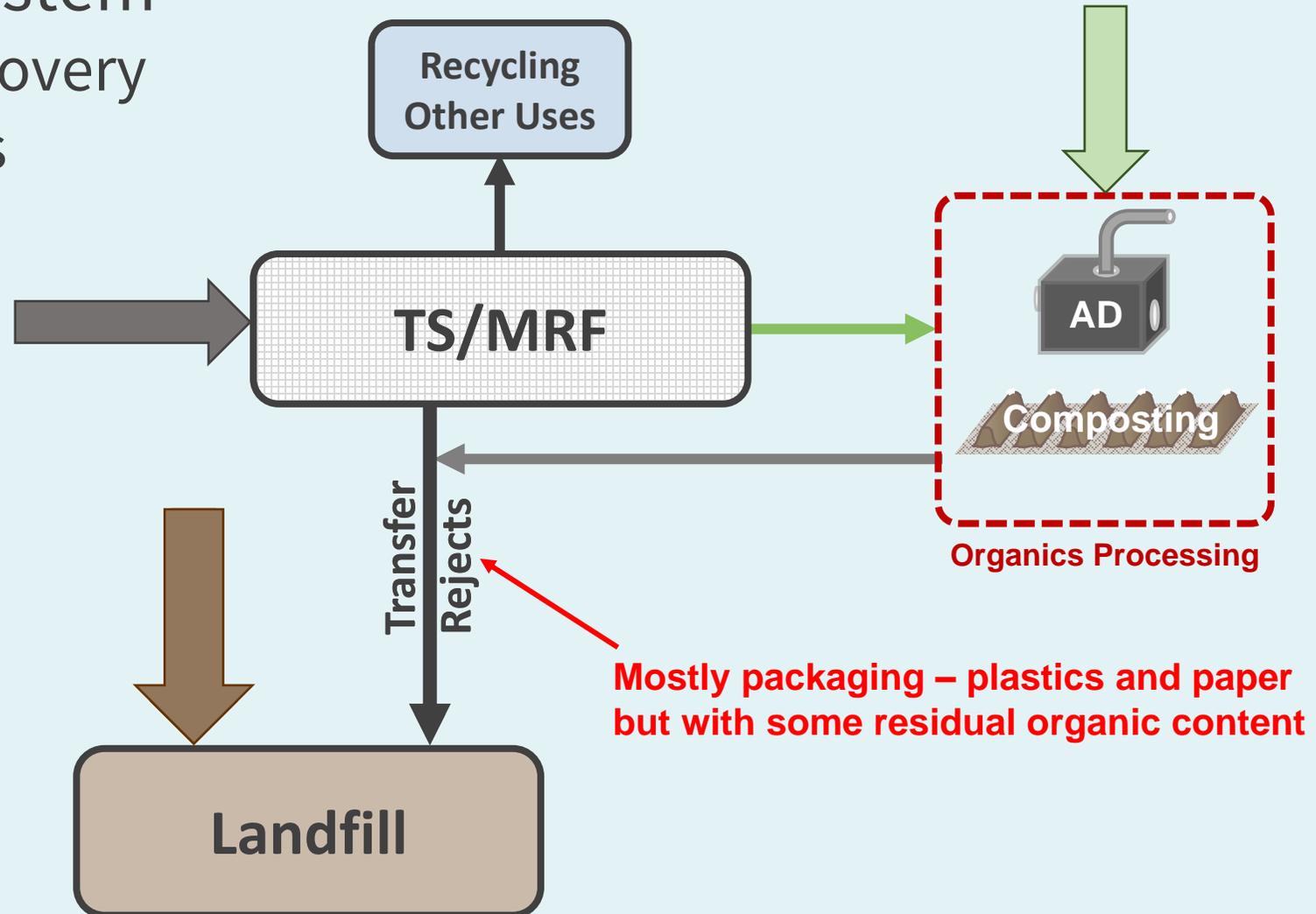
- Materials Recovery
- no Organics
- no WTE



Organics Processing

Solid Waste System

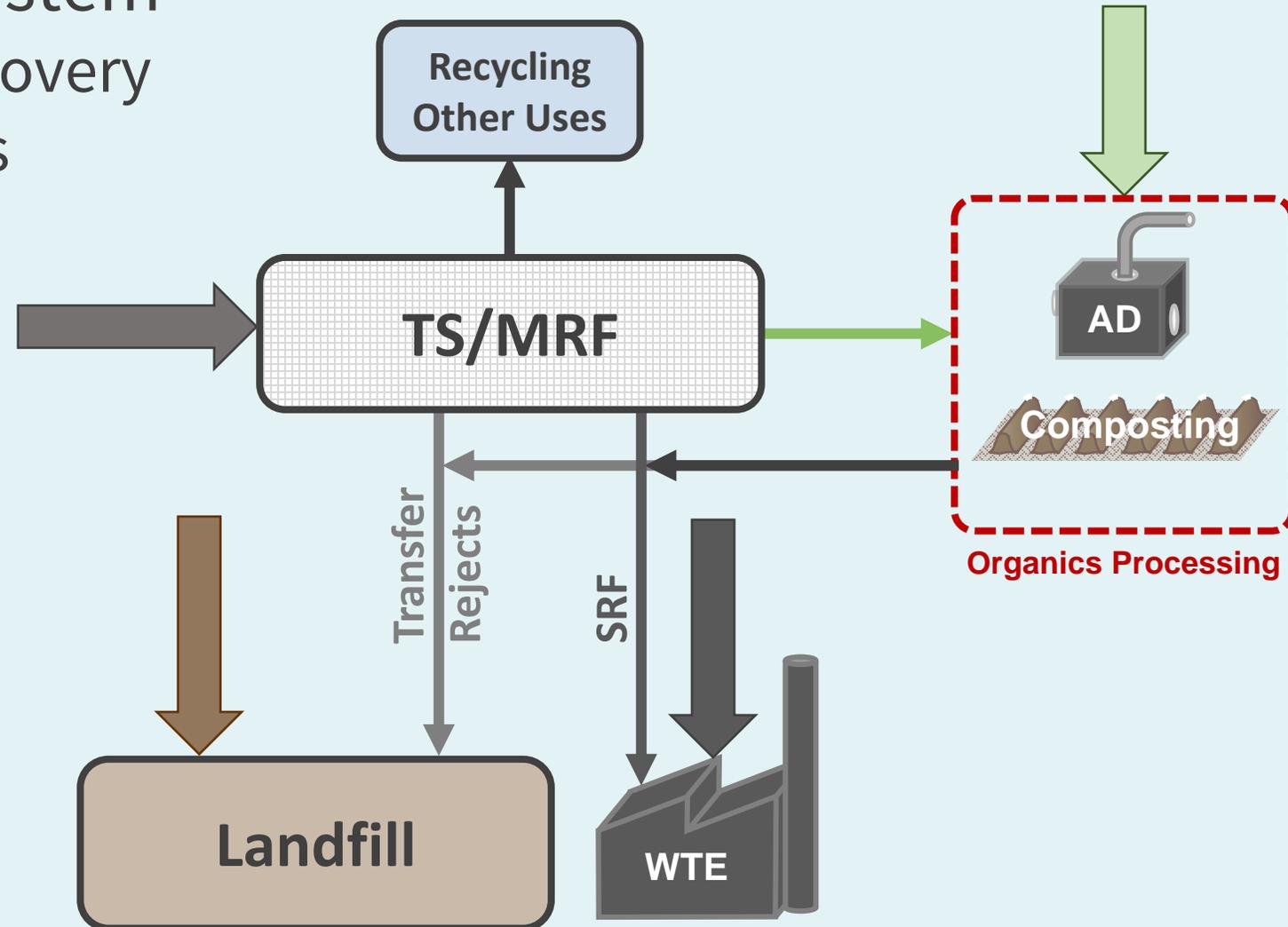
- Materials Recovery
- with Organics
- no WTE



Organics Processing

Solid Waste System

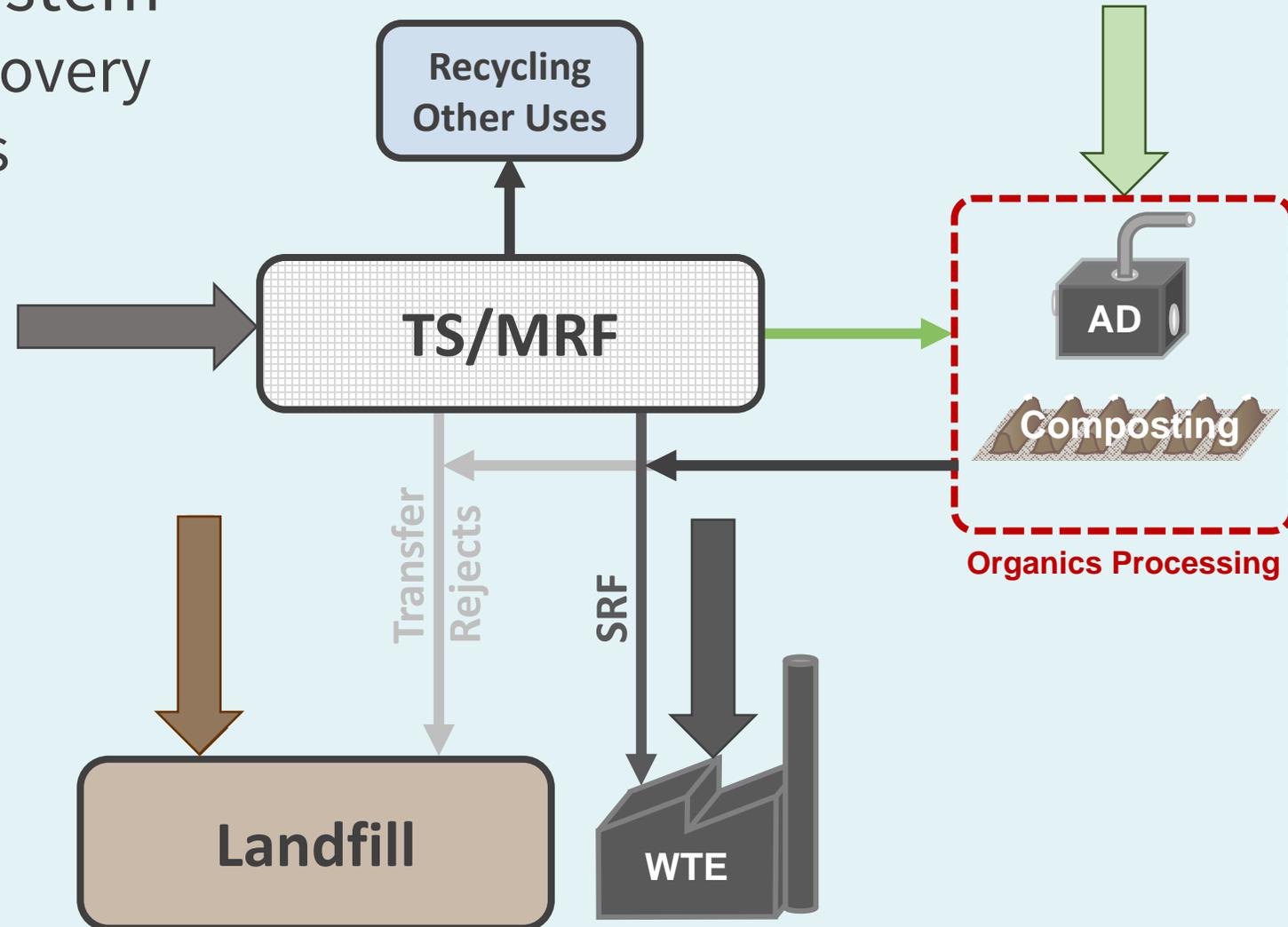
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Organics Processing

Solid Waste System

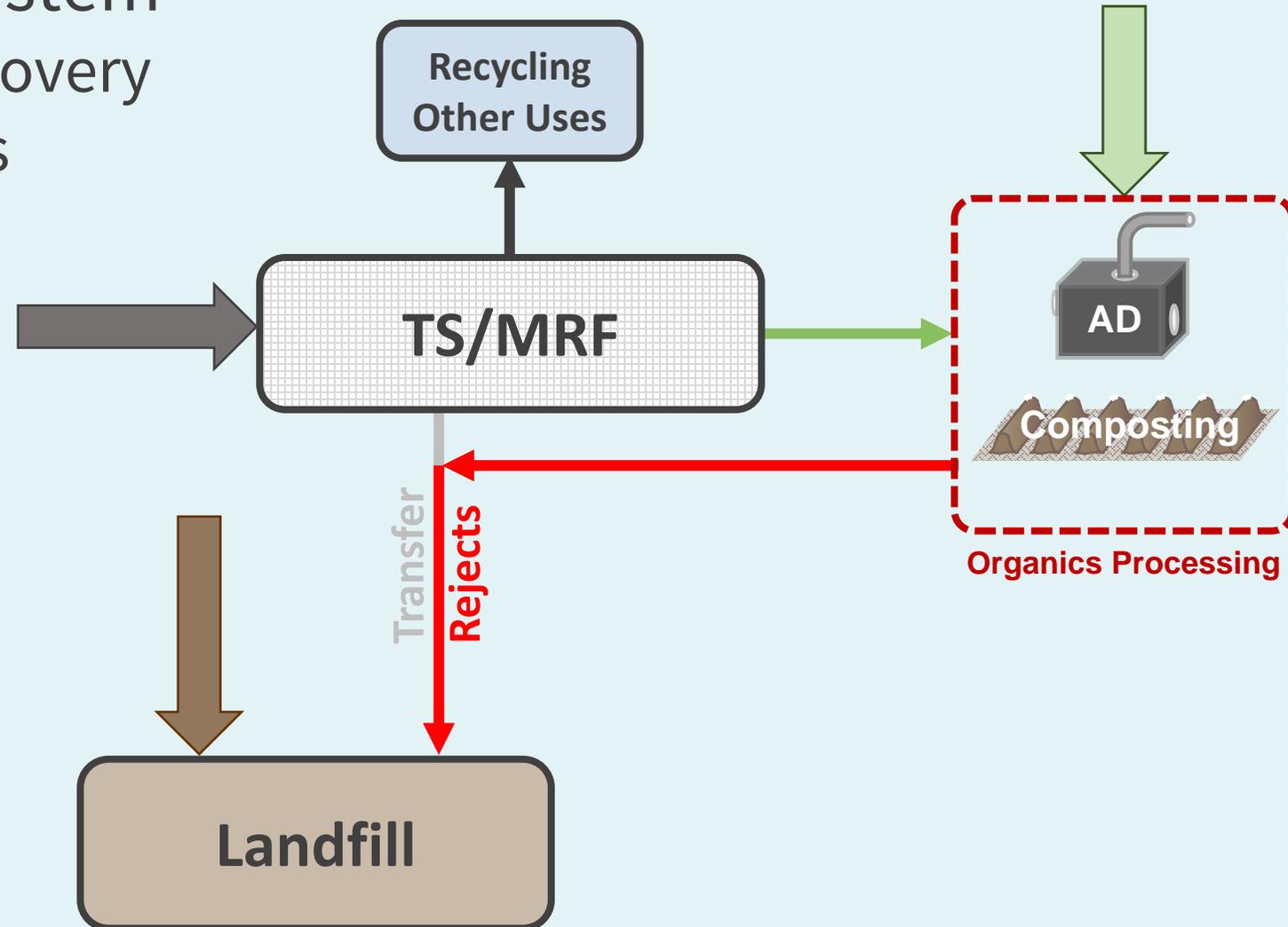
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Organics Processing

Solid Waste System

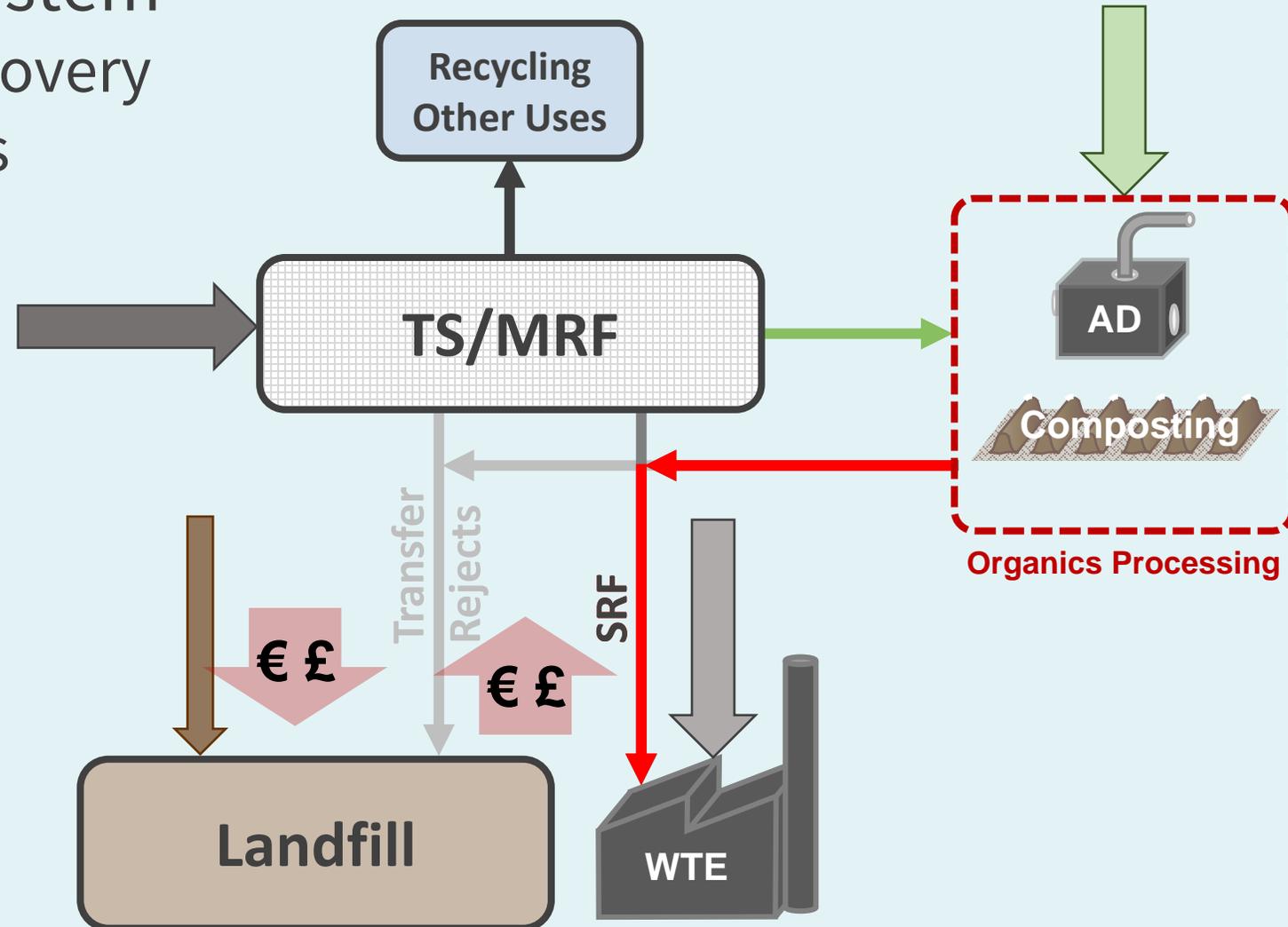
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Organics Processing

Solid Waste System

- Materials Recovery
- with Organics
- with WTE



Europe vs. the U.S.

Reality

European AD facilities can typically sell electricity for much higher prices than U.S. facilities

- 2014 incentivized prices in **Germany**: 27.4¢ / kWh
 - Lowered incentives led to significant decrease in new projects
- Average prices in **California**: 9¢-12¢ / kWh

Europe vs. the U.S.

Myth

The European waste stream is different from the U.S.

substantially

Organic Wastes



Europe



U.S.

Organic Wastes



U.S.



Europe

Organic Wastes



Europe



U.S.

Organic Wastes



U.S.



Europe

Organic Wastes



U.S.



Europe

Organic Wastes



Europe



U.S.

Organic Wastes



Canada



Canada

Organic Wastes

Summary

Europe has a much stronger business case for AD:

- Higher landfill fees
- Higher energy prices
- Incentives for renewable energy

European has a 20-year head start

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